MECHANICAL GENERAL NOTES

1. THE ENTIRE INSTALLATION SHALL CONFORM TO THE 2010 CALIFORNIA BUILDING CODE (CBC), THE 2010 CALIFORNIA MECHANICAL CODE (CMC), AND ALL APPLICABLE CODES, REGULATIONS AND STANDARDS. THE SUBCONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE PROJECT MANAGER.
2. THE SUBCONTRACTOR SHALL VISIT THE SITE OF WORK PRIOR TO SUBMISSION OF BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH THE WORK CONDITIONS & EXACT NATURE OF THE WORK. SUBMISSION OF A BID ACKNOWLEDGES FULL RESPONSIBILITY FOR FURNISHING A COMPLETE AND FUNCTIONAL SYSTEM. NO CHANGES IN CONTRACT WILL BE MADE TO ACCOMMODATE OR ALLOW EXTRA FUNDS FOR ANY OMISSION WHICH RESULTS FROM A FAILURE TO THOROUGHLY MAKE THE EXAMINATION.
3. THE SUBCONTRACTOR BID SHALL NOT BE LIMITED TO THE WORK SHOWN ON THE PLANS AND SPECIFICATIONS. ALL PREMIUM OVERTIME COSTS, UTILITY CHARGES, COST FOR TEMPORARY UTILITY SERVICES, ALL ALTERATION, DEMOLITION AND EXTENSION WORKS, PERMITS, INSPECTION FEES, MISCELLANEOUS CONTINGENCY COSTS, ETC. SHALL BE INCLUDED IN BID.
4. THE SUBCONTRACTOR SHALL FURNISH ALL MATERIALS, TOOLS, LABOR, ETC. TO INSTALL A COMPLETE AND FUNCTIONING SYSTEM AS INDICATED ON THE DRAWINGS.
5. THE SUBCONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR AND MATERIALS ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR.
6. THE SUBCONTRACTOR SHALL COORDINATE HIS WORK HARMONIOUSLY WITH ALL TRADES. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ROOM ELEVATIONS. ALL WORK SHALL BE IN ACCORDANCE WITH BEST CONSTRUCTION PRACTICES.
7. ALL WORK SHALL BE DONE IN A MANNER THAT WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT AREAS AND SHALL NOT INTERFERE WITH ITS OPERATION. ANY WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE. SCHEDULING SHALL BE DONE IN COOPERATION WITH THE ENGINEER. INCLUDE ALL PREMIUM TIME CHARGES IN BID TO COVER AFTER-HOURS AND WEEKEND WORK.
8. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CMC & SMACNA STANDARDS. DUCTWORK SHALL BE GALVANIZED STEEL UNLESS OTHERWISE NOTED. DOUBLE THICKNESS TURNING VANES SHALL BE USED ON ALL DUCT ELBOWS OF 90°. ALL DUCT JOINTS SHALL BE SEALED AIR TIGHT WITH APPROVED SEALER & DUCT TAPE.
9. INSULATION SHALL BE U.L. LISTED IN COMPLIANCE WITH FLAME-SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF THE BUILDING CODE. INSTALLATION SHALL BE IN ACCORDANCE WITH CALIFORNIA ENERGY STANDARDS. INSULATE ALL INTERIOR CONDITIONED SUPPLY AIR DUCTWORK WITH 1-1/2" THICK, 0.75LB PER CU. FT. DENSITY FIBERGLASS INSULATION WITH VAPOR BARRIER (MAX. CONDUCTANCE = 0.30 AT 75 °F MEAN TEMPERATURE). CONDENSATE PIPING SHALL BE INSULATED WITH 3/8" FOAM PLASTIC.
10. PROVIDE HANGERS AND SUPPORTS AS REQUIRED. PLUMBERS TAPE AND WIRE ARE NOT ACCEPTABLE. CONDENSATE PIPING SHALL BE CPVC OR PVC WHERE CODE ALLOWS.
11. VOLUME DAMPERS SHALL BE PROVIDED IN EACH DUCT BRANCH TO EACH DIFFUSER AND REGISTER.
12. EACH MECHANICAL OR GRAVITY VENTILATION SYSTEM OR UNIT (SUPPLY AND/OR EXHAUST) EXCEPT COMBUSTION AIR SHALL BE EQUIPPED WITH A MEANS OF SHUT-OFF WHEN VENTILATION IS NOT REQUIRED.
13. EXHAUST AIR OPENINGS IN EXTERIOR WALLS OR ROOF SHALL BE PROVIDED WITH BACKDRAFT DAMPERS.
14. EACH HVAC SYSTEM SHALL BE PROVIDED WITH A SPACE TEMPERATURE CONTROL DEVICE THAT SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FROM 55°F TO 85°F AND SHALL BE CAPABLE OF OPERATING THE SYSTEM HEATING AND COOLING IN SEQUENCE. CONTROLS SHALL BE ADJUSTED TO PROVIDE A TEMPERATURE RANGE UP TO 10 °F BETWEEN FULL HEATING AND COOLING AND HAVE A CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE OF NO MORE THAN 70 °F AND COOLING AT A TEMPERATURE NOT LESS THAN 78°F. INSTALL ALL THERMOSTATS AT 48 IN. AFF UNO.
15. WATERTIGHT FLASHING SHALL BE PROVIDED WHEREVER DUCTWORK OR PIPING PENETRATES ROOF OR EXTERIOR WALLS.
16. AUTOMATIC CONTROLS SHALL COMPLY WITH ASHRAE STANDARD REQUIREMENTS FOR OFF-HOUR CONTROL.
17. BEFORE STARTING ANY WORK, THE SUBCONTRACTOR FOR THIS SECTION OF THE WORK SHALL EXAMINE A COMPLETE SET OF DRAWINGS FOR ALL TRADES, INCLUDING ARCHITECTURAL, HVAC, ELECTRICAL, FIRE PROTECTION AND PLUMBING. DIMENSIONS, SPACE REQUIREMENTS AND POINTS OF CONNECTION TO ALL EQUIPMENT SHALL BE VERIFIED AND ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICT WITH THE BUILDING STRUCTURE AND THE WORK OF THE OTHER TRADES SHALL BE MADE.
18. COORDINATE LOCATIONS AND ELEVATIONS OF EQUIPMENT, DUCTS, PIPING, AND ROOF OPENINGS WITH ALL RELEVANT TRADES TO AVOID INTERFERENCE. LOCATIONS AND SIZES MAY BE DEPENDENT UPON EQUIPMENT SELECTIONS. COORDINATE SIZES AND LOCATIONS OF ALL OPENINGS WITH APPROPRIATE EQUIPMENT REQUIREMENTS.
19. PERMANENT ACCESS TO EQUIPMENT SHALL BE PROVIDED WITH OTHER TRADES.
20. A MINIMUM OF 36" CLEAR WORKING SPACE IN FRONT OF ACCESS PANELS TO THE COMPRESSOR, BLOW ASSEMBLY AND AIR FILTER SECTION SHALL BE PROVIDED.
21. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND OF FIRST GRADE QUALITY.
22. EACH PIECE OF EQUIPMENT AND ALL SYSTEMS SHALL BE ADJUSTED PRIOR TO SUBSTANTIAL COMPLETION AND READJUSTED PRIOR TO CLOSE-OUT TO INSURE PROPER FUNCTION OF ALL CONTROLS, MAINTENANCE OF TEMPERATURE, ELIMINATION OF NOISE AND VIBRATION, AND SHALL BE LEFT IN PROPER OPERATING CONDITION.
23. MINIMUM VENTILATION RATES SHALL COMPLY WITH THE LATEST EDITION OF ASHRAE STANDARDS.
24. THE SUBCONTRACTOR SHALL SUBMIT INSTALLATION COMPLIANCE FORMS TO LOCAL AUTHORITIES AS REQUIRED.
25. ALL EQUIPMENT SHALL BE INSTALLED, DUCTED AND/OR PIPED IN ACCORDANCE WITH THE MANUFACTURERS LATEST PRINTED INSTRUCTIONS. ANY CHANGES FROM DRAWING INFORMATION SHOULD BE COORDINATED WITH OTHER DISCIPLINES.
26. ALL PIPING AND DUCT INSTALLATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, ALL APPLICABLE CODES, PROJECT REQUIREMENTS, AND ACCEPTED PRACTICES AND STANDARDS.
27. ALL PIPE ROUTING IS BASED ON UNCERTIFIED CATALOG DIMENSIONS OF EQUIPMENT. SUBCONTRACTOR SHALL OBTAIN CERTIFIED DIMENSIONS FROM ALL MANUFACTURERS AND VERIFY ALL DIMENSIONS ON DRAWING. ALL PIPE ROUTING IS DESIGNED BASED ON BEST ROUTING PRACTICES. SUBCONTRACTOR SHALL VERIFY EACH LINE FOR FIELD CONDITIONS AND INTERFERENCES.
28. INSTALL ALL PIPING OUT OF NATURAL WALK-WAYS AND IN COMPLIANCE WITH OSHA SAFETY STANDARDS.
29. PROVIDE DIELECTRIC UNIONS, GASKETS, AND FASTENERS AT ALL DISSIMILAR METAL CONNECTIONS OR CONTRACT POINTS.
30. A 3/4" MINIMUM CONDENSATE DRAIN AND A 3/4" OVERFLOW DRAIN FROM EACH UNIT TO A CODE APPROVED RECEPTOR SHALL BE PROVIDED.
31. PROVIDE DRAIN PIPING TO FLOOR SINK, FLOOR DRAIN OR AIR GAP CONNECTION FROM PRESSURE/TEMPERATURE RELIEF VALVES, EQUIPMENT OVERFLOWS, EQUIPMENT BLOWDOWN, EQUIPMENT DRAINS, AND MANUAL/AUTOMATIC AIR VENTS.
32. SOFT-SOLDER JOINTS SHALL NOT BE INSTALLED UNDERGROUND OR BELOW CONCRETE SLABS ON GRADE.
33. PROVIDE ESCUTCHEON PLATES AT ALL WALL PENETRATIONS. PROVIDE WALL SLEEVE AND SEAL AT ALL MASONRY OR CONCRETE WALLS.
34. PIPE SHALL BE INSTALLED AND SUPPORTED TO PREVENT DAMAGE BY PRESSURE THRUST, OPERATING WEIGHT, OR THERMAL EXPANSION & CONTRACTION.
35. PROVIDE ANCHORAGE FOR ALL PIPING, DUCTWORK, AND EQUIPMENT IN ACCORDANCE WITH THE LATEST GUIDELINES FOR SEISMIC RESTRAINS OF MECHANICAL SYSTEMS AND PLUMBING SYSTEMS PER SMACNA. EQUIPMENT SUPPLIERS SHALL BE RESPONSIBLE FOR THE DESIGN OF THE ANCHORAGES OF THE EQUIPMENT. MECHANICAL EQUIPMENT SEISMIC BRACING MUST BE APPROVED BY THE ENGINEER.
36. ALL BRACING OF DUCTS AND PIPES SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER. A COPY OF THE GUIDELINES PUBLISHED BY SMACNA SHALL BE PROVIDED BY THE SUBCONTRACTOR AND KEPT ON THE JOB AT ALL TIMES.
37. EQUIPMENT SHALL BE SECURELY FASTENED TO VIBRATION ISOLATORS AND EARTHQUAKE RESTRAINTS.
38. HIGH VOLTAGE CONDUIT AND WIRE AND LOW VOLTAGE CONDUIT SHALL BE UNDER ELECTRICAL SECTION OF THE WORK. LOW VOLTAGE WIRING SHALL BE UNDER THIS SECTION OF THE WORK.
39. THE SUBCONTRACTOR SHALL VERIFY THE INPUT VOLTAGE AND AMPERAGE (HORSEPOWER) RATING OF ALL EQUIPMENT PRIOR TO INSTALLATION.
40. EQUIPMENT OR COMPONENTS SUPPORTED BY FOUNDATIONS AT GROUND LEVEL SHALL BE DESIGNED BY STRUCTURAL ENGINEER.
41. DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSION. WHERE DUCT LINER IS INSTALLED IN DUCT, INCREASE DUCT SIZE TO PROVIDE INSIDE CLEAR DIMENSIONS SHOWN ON DRAWINGS.
42. THE LOCATION OF ALL ACCESS PANELS FOR CONCEALED VALVES, FUSIBLE LINKS, DAMPER OPERATORS AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL TRADES.
43. PIPE STACKS AND RISERS SHALL BE SUPPORTED AT EACH FLOOR.
44. PROVIDE SHOP DRAWINGS FOR ALL EQUIPMENT, DUCTWORK, PIPING, DAMPERS, ETC. AND SUBMIT IT TO THE ENGINEER FOR APPROVAL.
45. ALL PIPING AND DUCTWORK SHALL PASS THROUGH ALL WALLS WITHOUT RIGID CONNECTIONS. PENETRATION POINTS SHALL BE SLEEVED TO ALLOW PASSAGE OF PIPING OR DUCTWORK, AND TO MAINTAIN 3/4" MIN & 1-1/4" MAX CLEARANCE AROUND THE OUTSIDE SURFACE. THIS CLEARANCE SHALL BE TIGHTLY PACKED WITH ONE POUND DENSITY GLASS FIBER AND CAULKED OUTRIGHT WITH NON-HARDENING SEALANT AFTER INSTALLATION OF PIPING OR DUCTWORK. INTEGRITY OF FIRE RATED WALLS OF FLOORS SHALL BE MAINTAINED WITH SUITABLE FIRE STOPPING.
46. PROVIDE ACCESS PANEL ON HARD CEILING WHERE ACCESS IS REQUIRED TO DUCT OR EQUIPMENT.
47. PROVIDE ACCESS PANEL FOR INACCESSIBLE DAMPERS OR LOCATE DAMPERS OVER T-BAR CEILING.
48. SMOKE DETECTION REQUIRED BY CMC SECTION 609 SHALL BE A SMOKE DETECTOR COMPLYING WITH NFPA 72 THAT WILL DETECT PRODUCTS OF COMBUSTION OTHER THAN HEAT, WHICH IS INSTALLED IN THE MAIN SUPPLY AIR DUCT AHEAD OF ANY OUTSIDE AIR INLET OR INSTALLED IN EACH ROOM OR SPACE SERVED BY THE SUPPLY AIR DUCT. ACTIVATION OF ANY DETECTOR SHALL CAUSE THE AIR MOVING EQUIPMENT TO AUTOMATICALLY SHUT DOWN AND SHALL ACTIVATE THE FIRE ALARM SYSTEM.
49. AIR MOVING SYSTEMS SUPPLYING AIR IN EXCESS OF 2000 CUBIC FEET PER MINUTE TO ENCLOSED SPACES WITHIN BUILDINGS SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF. SHUTOFFS SHALL STOP THE AIR MOVING EQUIPMENT WHEN SMOKE IS DETECTED IN ROOMS SERVED BY THE SYSTEM. EXCEPTIONS: DETECTORS NEED NOT BE INSTALLED WHEN: (1) ROOMS HAVE A DIRECT EXIT TO THE EXTERIOR OF THE BUILDING OR (2) SYSTEMS ARE DESIGNED FOR SMOKE CONTROL (CMC SECTION 608).
50. PENETRATIONS IN WALLS, FLOORS OR CEILINGS, WHICH REQUIRE PROTECTED OPENINGS SHALL BE FIRE-STOPPED. FIRE-STOPPING SHALL BE OF AN APPROVED MATERIAL, MFG.'S INSTALLATION INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE INSPECTION AUTHORITY AND BE MAINTAINED AT THE JOB SITE.
51. INSULATION APPLIED TO THE EXTERIOR SURFACE OF DUCTS SHALL HAVE A FLAME-SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE-DENSITY RATING OF NOT MORE THAN 50 WHEN TESTED AS A COMPOSITE ASSEMBLY INCLUDING INSULATION, FACING MATERIALS, TAPES, AND ADHESIVES AS NORMALLY APPLIED (CMC 605.0).
52. CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH THE EXIT OR NEW STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAILED ON THE DRAWINGS OR APPROVED BY THE PROJECT MANAGER.
53. THE SUBCONTRACTOR SHALL REPORT TO THE PROJECT MANAGER IMMEDIATELY ANY INTERFERENCE BETWEEN TRADES OR WITH BUILDING OBSTRUCTIONS.
54. THE SUBCONTRACTOR SHALL REPAIR/PATCH AND WEATHER PROOF ANY OPENINGS CAUSED BY EQUIPMENT/PIPING INSTALLATION AND SHALL PAINT WHERE NECESSARY.
55. PROVIDE AND MAINTAIN RECORD DRAWINGS ON THE JOB THAT ACCURATELY REFLECT THE CURRENT AS-BUILT STATUS OF THE PROJECT. SURRENDER AS-BUILT DRAWINGS TO PROJECT MANAGER UPON COMPLETION OF PROJECT.
56. COVER ALL WALL, FLOOR, CEILING, AND ROOF OPENINGS LEFT AS THE RESULT OF THE WORK. PROVISIONS SHALL BE MADE TO PROTECT PEOPLE FROM INJURY AND TO PROTECT EQUIPMENT FROM WEATHER.
57. THE SUBCONTRACTOR SHALL PROVIDE ALL SAFETY MATERIALS AND EQUIPMENT NOT LIMITED TO BARRIERS, SIGNS, LIGHTS, ETC.
58. THE SUBCONTRACTOR SHALL PROVIDE BARRICADE, SAFETY SIGNS, AND OTHER DEVICES TO ISOLATE WORK AREA DURING CONSTRUCTION.
59. THE SUBCONTRACTOR SHALL THOROUGHLY CLEAN THE UNITS, REMOVE ALL PACKING LABELS, STICKERS, AND CRATING DEBRIS AND LEAVE ALL INSTALLATION FINISHED AND READY FOR OPERATION.
60. THE SUBCONTRACTOR SHALL AFFIX A MAINTENANCE LABEL TO ALL EQUIPMENT REQUIRING ROUTINE MAINTENANCE AND SHALL PROVIDE THREE COPIES OF MAINTENANCE AND OPERATING MANUALS TO THE PROJECT MANAGER.
61. AFTER COMPLETION, THE COMPLETE SYSTEM SHALL BE TESTED AND BALANCED BY AABC CERTIFIED TEST & BALANCE SUBCONTRACTOR PER SPECIFICATION. ANY ADDITIONAL BALANCING DEVICES REQUIRED FOR PROPER BALANCING SHALL BE INSTALLED AS PART OF THIS CONTRACT. PRIOR TO BALANCING ALL FILTERS SHALL BE REPLACED WITH NEW CLEAN FILTERS. A MINIMUM OF 1 ADDITIONAL SEASONAL BALANCING ADJUSTMENT SHALL BE MADE WITHIN ONE YEAR AFTER COMPLETION AT NO ADDITIONAL CHARGE.
62. UPON COMPLETION OF PROJECT AND PRIOR TO ACCEPTANCE OF THE WORK BY THE ENGINEER, SUBCONTRACTOR SHALL FURNISH SIX (6) COPIES OF OPERATION AND MAINTENANCE MANUAL OF EQUIPMENT BOUND IN BOOK FOR AND INDEXED. MANUAL SHALL CONTAIN PARTS LIST, RECOMMENDED PERIODS OF INSPECTION, ETC., AND NAME, ADDRESS AND PHONE NUMBER OF ALL SUPPLIERS.
63. THE SUBCONTRACTOR SHALL PREPARE ONE (1) SET OF "RECORD DRAWINGS" PLANS AND KEEP AT JOB SITE FOR REVIEW BY THE ENGINEER. ANY CHANGES FROM THE DESIGN DRAWINGS SHALL BE NOTED WITH RED INK. UPON COMPLETION OF PROJECT THE SUBCONTRACTOR SHALL SUBMIT THE PLANS TO THE ENGINEER.
64. THE SUBCONTRACTOR SHALL FURNISH A TRAINED AND COMPETENT SERVICE ENGINEER FOR A MINIMUM OF 1 WORKING DAY TO INSTRUCT THE OPERATORS IN THE OPERATION AND MAINTENANCE OF THE SYSTEM.
65. THE CONTRACTOR SHALL POST THE INSTALLATION CERTIFICATE FORM AND INSULATION CERTIFICATE FORM IN A CONSPICUOUS LOCATION OR KEPT WITH PLANS AND MADE AVAILABLE TO THE INSPECTOR.
66. HEATING AND AIR-CONDITIONING SYSTEM ARE SIZED, DESIGNED AND SELECTED USING THE FOLLOWING METHODS:
    A. ACCA MANUAL J, ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.
    B. ACCA 29-D MANUAL D, ASHRAE HANDBOOKS OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.
    C. ACCA 36-S MANUAL S OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS. PER CGBC 4.507.2.
67. AIR CONDITIONING EQUIPMENT DESIGNED TO BE IN A FIXED POSITION SHALL BE SECURELY FASTENED, PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALLATION INSTRUCTIONS SHALL BE PROVIDED TO THE FIELD INSPECTOR. (CMC SECTION 903.4.)

DUCTWORK LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MANUAL VOLUME DAMPER		FLEXIBLE DUCTWORK
	OPPOSED BLADE DAMPER	⊠	RECTANGULAR SUPPLY DUCT SECTION OR SUPPLY DIFFUSER
	INTERNALLY LINED DUCTWORK		RECTANGULAR EXHAUST DUCT SECTION OR EXHAUST GRILLE
	BOTTOM OUTLET SUPPLY DIFFUSER-PATTERN AS SHOWN ON PLANS	⧄	RECTANGULAR RETURN DUCT SECTION OR RETURN GRILLE
	SIDE OUTLET SUPPLY REGISTER		ROUND DUCT SECTION
	BOTTOM INLET RETURN REGISTER	→	AIR FLOW (SUPPLY)
	SIDE INLET RETURN REGISTER		AIR FLOW (RETURN OR EXHAUST)
	FLEXIBLE CONNECTION	MARK CFM	AIR DEVICE MARK
	ELBOWS WITH TURNING VANES	Ⓣ	THERMOSTAT
A.D.	ACCESS DOOR	SD	SMOKE DETECTOR
	RECTANGULAR TO ROUND TRANSITION		POINT OF CONNECTION
12X24	RECTANGULAR OR FLAT OVAL DUCTWORK SIZE, FIRST NUMBER IS SIDE SHOWN		POINT OF ORIGIN, WORK POINT
FD	FIRE DAMPER	▨	EXISTING TO BE REMOVED (DEMO)
FSD	FIRE SMOKE DAMPER	◇1	KEYED NOTE

FAN COIL UNIT SCHEDULE

		FCU 1	FCU 2	FCU 3	FCU 4	FCU 5	FCU 6	FCU A	FCU B	FCU C
UNIT DESIGNATION		FCU 1	FCU 2	FCU 3	FCU 4	FCU 5	FCU 6	FCU A	FCU B	FCU C
UNIT LOCATION		CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED
QUANTITY		-	-	-	-	-	-	-	-	-
MANUFACTURER'S NAME		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL NUMBER		FXMQ07PVJU	FXMQ09PVJU	FXMQ12PVJU	FXMQ18PVJU	FXMQ24PVJU	FXMQ48PVJU	FXDQ12MVJU	FXDQ12MVJU	FXDQ18MVJU
SUPPLY FAN	AIRFLOW (CFM)	300	320	320	640	700	1,400	280	280	440
	EXTERNAL STATIC PRESSURE IN W.G.	0.4	0.4	0.4	0.8	0.8	0.8	0.2	0.2	0.2
COOLING DATA	NOMINAL COOLING CAPACITY (BTU/HR)	7,500	9,500	12,000	18,000	24,000	48,000	12,000	12,000	18,000
	EAT (DB) °F	80	80	80	80	80	80	80	80	80
	EAT (WB) °F	63	63	63	63	63	63	63	63	63
HEATING DATA	HEATING CAPACITY (BTU/HR) HYDRONIC @120°	8,500	10,500	13,500	20,000	27,000	54,000	13,500	13,500	20,000
ELECTRICAL DATA	VOLTAGE / PHASE / HERTZ	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60	208-230 / 1 / 60
	MCA	1.4	1.8	2.3	3.4	3.4	3.4	1.4	1.4	1.4
	FUSE OR HACR CIRCUIT BREAKER AMPS	15	15	15	15	15	15	15	15	15
PHYSICAL DATA	UNIT WIDTH (IN)	21-5/8"	21-5/8"	21-5/8"	29-3/8"	39-3/8"	55-1/8"	28"	28"	36"
	UNIT DEPTH (IN)	27-9/16"	27-9/16"	27-9/16"	27-9/16"	27-9/16"	27-9/16"	25"	25"	25"
	UNIT HEIGH (IN)	11-13/16"	11-13/16"	11-13/16"	11-13/16"	11-13/16"	11-13/16"	8"	8"	8"
	UNIT WEIGHT (LBS)	55	55	55	80	80	101	60	60	70
REMARKS		①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪	①②③④⑤⑥⑦⑧⑨⑩⑪

① PROVIDE ACOUSTICALLY LINED S/A & R/A PLENUMS.
② PROVIDE ALL REQUIRED MATERIALS & REFRIGERANT LINES FOR COMPLETE INSTALLATION, SIZE RS/RL PIPING PER MANUFACTURERS GUIDELINES.
③ PROVIDE ROOM T-STATS (MODEL BRC1E72).
④ PROVIDE PERMANENT LABEL FOR EACH FAN COIL UNIT AND CONDENSING UNIT WITH THE APARTMENT NO. EACH UNIT SERVES.
⑤ PROVIDE CEILING ACCESS PANEL WITH ENCLOSURE (SIZE PER MANUFACTURER'S RECOMMENDATIONS).
⑥ PROVIDE CONTROL WIRING, CONDUIT ETC. FOR A COMPLETE AND OPERABLE SYSTEM.
⑦ PROVIDE MERV 6 FILTER AT UNIT.
⑧ PROVIDE CONDENSATE PUMP & SECONDARY SHUT-OFF SWITCH BY MANUFACTURER.
⑨ PROVIDE MIXING BOXES (M.B.) - BY MANUFACTURER FOR QUANTITY AND SIZE REFER TO FLOOR PLANS.
⑩ PROVIDE DAIKIN CENTRALIZED CONTROLLER (MODEL DCM601A71).
⑪ PROVIDE BRANCH SELECTOR BOX FOR EACH FAN COIL UNIT, MODEL BSVQ36PVJ (208, 1 ϕ, 60 HZ/ 60 WATTS).

MINI-SPLIT HEAT PUMP SYSTEM

UNIT DESIGNATION		AC 1
MANUFACTURER		DAIKIN
UNIT LOCATION		ELEVATOR MACHINE ROOM
UNIT TYPE		WALL MOUNTED SPLIT SYSTEM
INDOOR UNIT MODEL NUMBER		FTXS36LVJU
REFRIGERANT		R-410A
COMPRESSOR TYPE		INVERTER - VARIABLE SPEED
NOMINAL TONS		3.0
SEER / EER / HSPF		18.9 / 12.5 / 10.2
ELECTRICAL DATA	VOLTAGE / PHASE / HERTZ	208-230 / 1 / 60
	TOTAL MCA	1.0
	FUSE OR HACR CIRCUIT BREAKER AMPS (MIN.)	20
PHYSICAL DATA	UNIT WIDTH (IN)	47-1/4"
	UNIT HEIGHT (IN)	13-3/8"
	UNIT DEPTH (IN)	9-7/16"
	UNIT WEIGHT (LBS)	40
OUTDOOR UNIT	UNIT DESIGNATION	CU 1
	MODEL	RKS36LVJU
	UNIT WIDTH (IN)	37"
	UNIT HEIGHT (IN)	38-5/16"
	UNIT DEPTH (IN)	12-5/8"
	UNIT WEIGHT (LBS)	200
ELECTRICAL DATA	VOLTAGE / PHASE / HERTZ	208-230 / 1 / 60
	TOTAL MCA	19.5
	FUSE OR HACR CIRCUIT BREAKER AMPS (MIN.)	20
REMARKS		①②③④

① PROVIDE ALL REQUIRED MATERIALS & REFRIGERANT LINES FOR COMPLETE INSTALLATION, SIZE RS/RL PIPING PER MANUFACTURERS GUIDELINES.
② PROVIDE PROGRAMMABLE T-STATS WITH THREE SPEED SWITCHES.
③ PROVIDE CONTROL WIRING, CONDUIT ETC. FOR A COMPLETE AND OPERABLE SYSTEM.
④ PROVIDE PERMANENT LABEL FOR THE INDOOR FAN COIL UNIT AND OUTDOOR COMPRESSOR.

HEAT RECOVERY UNIT SCHEDULE

		HRU 1	HRU 2	HRU 3	HRU 4	HRU 5	HRU 6	HRU 7	HRU 8	HRU 9	HRU 10
UNIT DESIGNATION		HRU 1	HRU 2	HRU 3	HRU 4	HRU 5	HRU 6	HRU 7	HRU 8	HRU 9	HRU 10
MANUFACTURER'S NAME		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN
UNIT LOCATION		EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD	EQUIPMENT YARD
AREA SERVED		FIRST LEVEL	SECOND LEVEL	THIRD LEVEL	FOURTH LEVEL	FIFTH LEVEL	SIXTH LEVEL	SEVENTH LEVEL	EIGHTH LEVEL	NINTH LEVEL	TENTH LEVEL
MODEL NUMBER		REYQ312PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ	REYQ240PBTJ
NOMINAL TONS		26	20	20	20	20	20	20	20	20	20
IEER		16.2	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
COMPRESSOR	REFRIGERANT TYPE	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
	COMPRESSOR TYPE	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL	INVERTER SCROLL
	COMPRESSOR QTY.	6	4	4	4	4	4	4	4	4	4
CAPACITY	COOLING CAPACITY (BTU/HR)	297,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000
	HEATING CAPACITY (BTU/HR)	334,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000	257,000
ELECTRICAL DATA	VOLTAGE / PHASE / HERTZ	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60	208 / 3 / 60
	MCA	41.3, 36.1, 36.1	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3	41.3, 41.3
	FUSE OR HACR CIRCUIT BREAKER AMPS	60, 50, 50	60, 60	60, 60	60, 60	60, 60	60, 60	60, 60	60, 60	60, 60	60, 60
PHYSICAL DATA	UNIT WIDTH (IN)	3 X 37 = 111"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"	2 X 37 = 74"
	UNIT DEPTH (IN)	31"	31"	31"	31"	31"	31"	31"	31"	31"	31"
	UNIT HEIGHT (IN)	67"	67"	67"	67"	67"	67"	67"	67"	67"	67"
	UNIT WEIGHT (LBS)	3 X 560 = 1680	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120	2 X 560 = 1,120
REMARKS		①②	①②	①②	①②	①②	①②	①②	①②	①②	①②

① PROVIDE PERMANENT LABEL FOR EACH HEAT RECOVERY UNIT AND FAN COIL UNIT.
② SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS BASED ON TONNAGE & TOTAL LENGTH BETWEEN INDOOR & OUTDOOR UNITS.

SUPPLY FAN SCHEDULE

UNIT DESIGNATION		SF 1
UNIT LOCATION		CEILING
AREA SERVED		PLENUM
MANUFACTURERS NAME		GREENHECK
MODEL NUMBER		BSQ-90
DRIVE TYPE		BELT
CFM		700
STATIC PRESSURE IN W.G.		0.5
FAN RPM		TBD
MOTOR DATA	HORSEPOWER	1/4
	VOLTAGE	120
	PHASE	1
	HZ	60
SONES		12
FILTER		YES
DIMENSIONS		12"H x 16"W x 21"D
WEIGHT (LBS)		85
REMARKS		①②③

① FURNISHED WITH BACK-DRAFT DAMPER.
② INTERLOCK WITH LIGHTS (WITH A RELAY)
③ FURNISHED WITH MERV. 8 FILTER.

MECHANICAL SHEET INDEX

NO.	SHEET	DESCRIPTION	REMARKS
1	M-1	GENERAL NOTES, LEGENDS & SCHEDULES	-
2	M-2.01	FIRST FLOOR (SOUTH SIDE) - MECHANICAL PLAN	-
3	M-2.02	FIRST FLOOR (NORTH SIDE) - MECHANICAL PLAN	-
4	M-3	SECOND THRU TENTH FLOOR - MECHANICAL PLAN	-
5	M-4	MECHANICAL ROOF PLAN	-
6	M-5	MECHANICAL UNIT AND ENLARGED PLANS	-
7	M-6	MECHANICAL DETAILS AND SECTION VIEW	-

mep

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BENJAMIN B. ENTEZAM
No. M27247
Exp. 06-30-15

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PROJECT:
WHITTIER
SENIOR
HOUSING

NOT FOR BID OR CONSTRUCTION
FINAL PROJECT BIDDING TO BE BASED ON FINAL CONSTRUCTION DOCUMENTS APPROVED BY THE LOCAL BUILDING & SAFETY DEPARTMENT.

DEVELOPER:

ARCHITECT:
R&A DESIGN INC.

LOCATION:
WHITTIER, CA

REVISIONS

NO.	DATE	DESCRIPTION

SHEET NAME:
MECHANICAL
GENERAL NOTES,
LEGENDS & SYMBOLS

PROJECT NUMBER:
130610

ENGINEER: MAS
CHECKER: BE

ISSUED DATE: 08/01/2013
PLOT DATE: 08/15/2013

SHEET NUMBER:
M-1